

(Abstract of the Invention)

This invention provides flame-generated fine silica particles having an average particle size of 0.05 to 1 μm , wherein a fractal structure parameter α_1 at length scales ranging from 50 nm to 150 nm and a fractal structure parameter α_2 at length scales ranging from 150 nm to 353 nm satisfy the following formulas (1) and (2):

$$-0.0068S + 2.548 \leq \alpha_1 \leq -0.0068S + 3.748 \quad (1)$$

$$-0.0011S + 1.158 \leq \alpha_2 \leq -0.0011S + 2.058 \quad (2)$$

wherein S is a BET specific surface area (m^2/g) of the fine silica particles, in the measurement of small-angle X-ray scattering. When used as a filler for a semiconductor-encapsulation resin or when used as a filler for a polishing agent or for a coating layer for ink jet papers, the fine silica particles are available at high content without substantial enhancement of the viscosity. Besides, when used as a filler for the resin, the fine silica particles improve the strength of the molding compound. Furthermore, when used as a toner additive for electrophotography, the fine silica particles improve the free-flow property of the toner without removal from the toner surfaces.

30

35